# MG07ACA SERIES
## ENTERPRISE CAPACITY HDD

Using the world's first[1] 9-disk Helium-sealed design, the MG07ACA Enterprise Capacity SATA HDD provides up to 14TB[2] of conventional magnetic recording (CMR) capacity and 7,200 rpm performance. The industry-standard 3.5-inch[3] form-factor integrates easily into cloud-scale storage infrastructure, business-critical servers and storage, and File and Object storage solutions.

The MG07ACA Series utilizes Toshiba precision laser welding technology to seal helium inside the 9-disk mechanics for the life of the drive. The helium-sealed design reduces aerodynamic drag to deliver a lower operational power profile, helping to achieve TCO objectives for cloud-scale and software-defined data center infrastructure.

Product image may represent a design model.

## KEY FEATURES

- 14TB and 12TB capacity models
- Innovative 9-disk helium-sealed design for superior storage density
- Industry Standard 3.5-inch 26.1 mm Form Factor
- 7,200 rpm Performance
- SATA 6.0 Gbit/s Interface[4]
- Low operational power profile, providing excellent power efficiency (W/TB) for better TCO
- 550 Total TB Transferred per Year Workload Rating[5]
- Rotational Vibration (RV) Sensors
- Sanitize Instant Erase (SIE[6]) and Self-Encrypting Drive(SED) option model available

## APPLICATIONS

- Cloud-scale Storage Infrastructure
- Software-defined data center infrastructure
- File- and Object-based storage infrastructure
- Mid-line / Nearline Business Critical Workloads
- Tier 2 Business-Critical Servers and Storage Systems

## SPECIFICATIONS

| Item | | MG07ACA14TA<br>MG07ACA14TE | MG07ACA12TA<br>MG07ACA12TE |
|---|---|---|---|
| Interface | | SATA-3.3 | |
| Formatted Capacity | | 14 TB | 12 TB |
| Performance | Interface Speed | 6.0 Gbit/s, 3.0 Gbit/s, 1.5 Gbit/s | |
| | Rotation Speed | 7,200 rpm | |
| | Buffer Size | 256 MiB [7] | |
| | Maximum Data Transfer Speed [8] (Sustained) | 248 MiB/s Typ. | 242 MiB/s Typ. |
| Logical Data Block Length | MG07ACAxxxA ( fixed length ) | 4,096 B | |
| | MG07ACAxxxE (emulation) [9] | HOST: 512 B, DISK: 4,096 B | |
| Supply Voltage | Allowable Voltage | 12 V [10] ± 10 %   /  5 V [10] + 10% / -7% [11] | |
| Power Consumption | Random Read / Write 4KB Q1 | 8.09 W Typ. | 7.83 W Typ. |
| | Active Idle (Idle-A) | 4.53 W Typ. | 4.25 W Typ. |
| Acoustics (Sound Power) [12] | Idle | 20 dB Typ. | |

## ENVIRONMENTAL LIMITS

| Item | | Specification |
|---|---|---|
| Ambient temperature | Operating | 5 °C to 55 °C |
| | Non-Operating [13] [14] | - 40 °C to 70 °C |
| Relative Humidity | Operating | 5 % to 90 % R.H. (No condensation) |
| | Non-Operating | 5 % to 95 % R.H. (No condensation) |
| Altitude | Operating | - 305 m to 3,048 m |
| | Non-Operating [13] | - 305 m to 12,192 m |
| Shock [15] | Operating | 686 m/s$^2$ { 70 G } ( 2 ms duration ) |
| | Non-Operating | 2,450 m/s$^2$ { 250 G } ( 2 ms duration ) |
| Vibration [15] | Operating [16] | 7.35 m/s$^2$ { 0.75 G } ( 5 to 300 Hz ) <br> 2.45 m/s$^2$ { 0.25 G } ( 300 to 500 Hz ) |
| | Non-Operating [17] | 29.4 m/s$^2$ { 3.0 G } ( 5 to 500 Hz ) |

## RELIABILITY

| Item | Specification |
|---|---|
| MTTF [18] | 2,500,000 hours |
| Non-recoverable Error Rate | 10 error per $10^{16}$ bits read |
| Load / Unload | 600,000 times |
| Availability | 24 hours/day, 7 days/week |
| Rated Annual Workload (Total TB Transferred per Year, R/W) | 550 TB/year |

## MECHANICAL SPECIFICATIONS

| Item | Specification |
|---|---|
| Width | 101.85 mm Max |
| Height | 26.1 mm Max |
| Length | 147.0 mm Max |
| Weight | 720 g Max . |

[1] Source: Toshiba Electronic Devices & Storage Corporation, as of December, 2017.
[2] Definition of capacity: A terabyte (TB) is 1,000,000,000,000 bytes. A computer operating system, however, reports storage capacity using powers of 2 for the definition of 1TB = $2^{40}$ = 1,099,511,627,776 bytes and therefore shows less storage capacity.  Available storage capacity (including examples of various media files) will vary based on file size, formatting, settings, software and operating system and/or pre-installed software applications, or media content.  Actual formatted capacity may vary.
[3] "3.5-inch" means the form factor of HDDs. They do not indicate drive's physical size.
[4] Read and write speed may vary depending on the host device, read and write conditions, and file size.
[5] Workload is defined as the amount of data written, read or verified by commands from host system.
[6] SIE: Sanitize Instant Erase. SIE is a function to invalidate the data recorded on the magnetic disks at a blink.
[7] A mebibyte (MiB) means $2^{20}$, or 1,048,576 bytes.
[8] The maximum sustained data rate and interface speed  may be restricted to the response speed of host system and by transmission characteristics.
    1 Gbit/s = 1,000,000,000 bits/s. 1 MiB/s = 1,048,576 bytes/s
[9] Read–modify-write is supported.
[10] Input voltages are specified at the HDD connector side, during HDD ready state.
[11] Make sure the value is not less than -0.3V DC (less than -0.6V, 0.1ms) when turning on or off the power.
[12] The measuring method is based on ISO 7779.
[13] Non-operating condition(except storage condition) assumes short term transportation.
[14] The range of altitude is 3,048 m or less. Up to 55°C at 7,620m. Up to 40°C at 12,192m.
[15] Vibration applied to the HDD is measured at near the mounting screw hole on the frame as much as possible.
[16] At random seek write/read and default on retry setting with log sweep vibration.
[17] At power-off state after installation
[18] MTTF (Mean Time to Failure) is not a guarantee or estimate of product life; it is a statistical value related to mean failure rates for a large number of products which may not accurately reflect actual operation.  Actual operating life of the product may be different from the MTTF.

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